

Application No. 10/709,351

Reply to Office Action of March 8, 2006

Amendments to and Listing of the Claims:

Please cancel claims 15 and 16. Please amend claims 1, 2, 13, and 17-20 as indicated below, wherein strikethrough indicates deletion and underlining indicates addition. Please add new claims 21 and 22. This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently amended) A system for controlling a set of material carriers under control of a master controller comprising:
 - a set of at least two material carriers having a spread spectrum RF transceiver;
 - at least one master controller unit having a spread spectrum RF transceiver; in which communication between said controller and said set of carriers passes through a link comprising an extended conductor connected to said controller and an antenna connected to each carrier; and
 - each carrier contains a carrier processor for processing data received by said carrier RF transceiver.
2. (Currently amended) A system according to claim 1, in which said extended conductor comprises a coaxial cable having RF leakage along its length sufficient to transmit to said ~~antenna~~ antennas.
3. (Original) A system according to claim 1, in which said extended conductor comprises a twin-lead conductor.
4. (Original) A system according to claim 1, in which each carrier receives a location signal from nearby carriers indicating the position of said nearby carriers and broadcasts location information indicating its own location.
5. (Original) A system according to claim 4, in which at least one carrier processes said location signal from nearby carriers indicating the position of said nearby carriers to calculate

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therefrom whether said at least one carrier will collide with one of said nearby carriers.

6. (Original) A system according to claim 4, in which said controller receives said location signal from said nearby carriers indicating the position thereof and calculates therefrom whether any of said nearby carriers will collide with another one of said nearby carriers.
7. (Original) A system according to claim 1, in which said master controller communicates with a set of zone controllers, each of which controls a set of carriers within a corresponding zone of said system.
8. (Original) A system according to claim 7, in which said master controller communicates with said set of zone controllers, through separate channels in said RF spread spectrum.
9. (Original) A system according to claim 7, in which said master controller communicates with said set of zone controllers, through separate addresses for each zone controller.
10. (Original) A system according to claim 7, in which said zone controller communicates with said set of carriers through separate channels in said RF spread spectrum.
11. (Original) A system according to claim 7, in which said zone controller communicates with said set of carriers through separate addresses for each carrier.
12. (Original) A system according to claim 1, in which said RF transceivers operate in a frequency band that is also used by a telecommunications system.
13. (Currently amended) A system according to claim 1, further comprising at least one zone, each in which said zone further comprises being provided with at least one antenna connected to a zone controller, whereby said at least one zone has an air interface link in addition to said link comprising an extended conductor.

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14. (Original) A system according to claim 13, in which each carrier receives a location signal from nearby carriers indicating the position of said nearby carriers and broadcasts location information indicating its own location.

15. (Cancelled)

16. (Cancelled)

17. (Currently amended) A system according to claim 1, further comprising at least one zone in which said extended conductor ~~in at least one zone~~ further comprises at least one attenuator adapted to reduce signal power transmitted from said extended conductor in an area of said at least one zone.

18. (Currently amended) A method of exchanging data between a set of material carriers under control of a master controller and said master controller comprising steps of:
providing a set of at least two material carriers having a spread spectrum RF transceiver;
providing said a master controller unit having a spread spectrum RF transceiver;
communicating between said controller and said set of carriers passes through a link comprising an extended conductor connected to said controller and an antenna connected to each carrier; and
processing, in each carrier, data received by said carrier RF transceiver.

19. (Currently amended) A method according to claim 18, further comprising a step in which each carrier receives a location signal from nearby carriers indicating the position of said nearby carriers and broadcasts location information indicating its own location.

20. (Currently amended) A method according to claim 19, further comprising a step in which at least one carrier processes said location signal from nearby carriers indicating the

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position of said nearby carriers to calculate therefrom whether said at least one carrier will collide with one of said nearby carriers.

21. (New) An automated material transport system providing improved control communications comprising:

at least one material carrier including:

a material carrier controller,

a material carrier spread spectrum modem operably coupled to the material carrier controller, and

a material carrier antenna operably coupled to the material carrier modem; and

a master controller including:

a master controller processor,

a master controller spread spectrum modem operably coupled to the master controller processor, and

a master controller antenna operably coupled to the master controller modem,

wherein:

the at least one material carrier is adapted to travel along a predetermined path, and

the master controller antenna is at least substantially coextensive with the predetermined path.

22. (New) The automated material transport system of claim 21, further comprising a plurality markers placed at predetermined intervals along the predetermined path, the material carrier controller being adapted to determine position along the predetermined path of the at least one material carrier based upon information obtained from the plurality of markers, and the material carrier controller being adapted to communicate position of the material carrier to the master controller via the material carrier spread spectrum modem and the material carrier antenna.